

***IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES***

Applicant: Peter MARDILOVICH et al.
Title: ELECTROLESS DEPOSITION METHODS AND SYSTEMS
Appl. No.: 10/618,049
Filing Date: 7/11/2003
Examiner: Katherine A. BAREFORD
Art Unit: 1792
Confirmation Number: 5611

REPLY BRIEF

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Sir:

Under the provisions of 37 C.F.R. § 41.41, this Reply Brief is being filed in response to the Examiner's answer mailed November 24, 2008, in the above-identified application. This Reply is timely filed. No fee is due; however, authorization is hereby given to charge any deficiency (or credit any balance) to the undersigned deposit account 08-2025.

Appellants acknowledge that claim 19 should not have been included among the rejected claims in the first and fourth rejections as listed under the heading "Grounds of Rejection to be Reviewed on Appeal" in the Appeal Brief. The first and fourth rejections are thus properly stated as follows:

- Rejection of claims 1-4, 6-12, 14-15, 18, and 20 as obvious under 35 U.S.C. § 103(a) over U.S. Patent No. 6,120,588 (“Jacobson”) in view of U.S. Patent No. 4,301,196 (“McCormack”).
- Rejection of claims 1-4, 6-12, 14-15, 18, and 20 as obvious under 35 U.S.C. § 103(a) over Jacobson in view of McCormack as applied to claims 1-4, 6-12, 14-15, and 18-20 above and further in view of U.S. Patent No. 5,403,649 (“Morgan”).

As explained below, the Examiner’s Answer compounded the legal errors noted in the Appeal Brief.

I. JACOBSON WOULD NOT HAVE LED A PERSON OF ORDINARY SKILL IN THE ART TO CONSIDER MCCORMACK

As noted in the Appeal Brief, the examiner mischaracterized Jacobson as disclosing that all formulations used in printing circuit boards could be applied by ink-jetting. This error led the examiner to conclude that the claims were obvious because McCormack disclosed applying an electroless initiator to a substrate. Based on its overbroad reading of Jacobson, the Office concluded that it would have been obvious to apply the electroless initiator of McCormack by ink-jetting.

In the Examiner’s Answer, the examiner states (sentence bridging pages 6-7, and page 17, lines 2-13):

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Jacobson to use the conventional electroless plating features and materials taught by McCormack in the inkjet electroless plating process with an expectation of a desirable plated article being achieved, because Jacobson teaches a method of inkjet electroless plating that can be used with conventional electroless plating chemistry and McCormack teaches conventional electroless plating chemistry,

including (1) the use of an initiator layer of electroless active material

Jacobson does not specifically address the application of material by ink jetting other than for the electroless plating (metal salt and, separately, reducing agent). However, Jacobson does teach to look to examples of electroless plating chemistries in the art, which would, at the least suggest to look at plating chemistries such as those described in McCormack, which is specifically an example of electroless plating chemistry in the art. Thus, it is the Examiner's position that it would clearly be suggested from a reading of Jacobson and McCormack that the electroless plating described in McCormack (i.e., the application of copper using materials in the described solution) would be advantageously done by ink-jet treatment. This is especially true as McCormack specifically does not limit the electroless plating of the solution materials to immersion, teaching that the application can also be done by "spraying" (see column 7, lines 5-10)

The examiner erred in characterizing Jacobson as disclosing "a method of inkjet electroless plating that can be used with conventional electroless plating chemistry". In contrast, Jacobson does not disclose that all conventional electroless plating chemistries are suitable.

Jacobson limits the suggested electroless plating chemistries to those suitable for the systems that Jacobson discloses: "Many other examples of chemistries suitable for the present system are known in the art of electroless plating." See column 10, lines 3-4. This quoted passage is properly interpreted to mean that other known chemistries might be suitable for use in the specific ink-jet systems of Jacobson's Figures 9A-9D. These systems include a jet containing a metal or semiconductive salt and a jet containing a reducing agent according to Figure 9A (column 9, lines 64-67), a jet containing a metal or semiconductive salt and an electron beam according to Figure 9B (column 10, lines 7-11), a jet containing a metal or semiconductive salt and an electric potential V according to Figure 9C (column 10, lines 13-

18), a jet containing a metal or semiconductive salt and a light beam according to Figure 9D (column 10, lines 20-25).

These ink-jet systems of Jacobson's Figures 9A-9D do not include an electroless initiator. Accordingly, the Office erred in characterizing Jacobson as containing a general disclosure broadly relevant to electroless initiators.

Regarding McCormack, the examiner stated in the Examiner's Answer that "McCormack specifically does not limit the electroless plating of the solution materials to immersion, teaching that the application can also be done by "spraying"" (page 17, lines 11-13).

Contrary to the attempted suggestion, McCormack's disclosure of "spraying" does not indicate greater relevance to ink-jet technology or application of an initiator. Taken in context of the full quote from McCormack, this disclosure merely describes another method of plating unrelated to ink-jetting (emphasis added; column 7, lines 5-15):

Following pre-treatment and/or sensitization, the surface to be plated is immersed in or otherwise exposed to, as by spraying or slurry, the autocatalytic copper baths, and permitted to remain in the bath until a copper deposit of the desired thickness has been built up. In practice, the substratum or article or part being coated can be stationary and the solution moved into contact therewith, or, alternatively, the solution or offset or part being plated can be continuously conveyed through a tank or other reservoir containing the plating solution or a spray curtain of the plating solution.

The quoted passage describes spraying after sensitization ("Following pre-treatment and/or sensitization . . . "). The disclosure of spraying is thus unrelated to the step of applying an initiator.

In any event, ink-jetting is not equivalent to spraying. Ink-jetting is a complex process involving many potential problems and variables, such as nozzle clogging, bubble formation,

droplet velocity, and ink viscosity. Spraying is a relatively simple and crude process similar to immersion, as indicated by the quoted passage (“immersed in or otherwise exposed to, as by spraying or slurry”).

Obviousness requires some degree of predictability. *Amgen, Inc. v. Chugai Pharmaceutical Co.*, 927 F.2d 1200, 1207-08 (Fed. Cir. 1991). Absence of a reasonable expectation of success supports nonobviousness. *In re Rinehart*, 531 F.2d 1048 (C.C.P.A. 1976).

Here, a person of ordinary skill in the art would not have recognized any predictability in introducing the relatively crude, two-step system of McCormack into the relatively complex ink-jet system of Jacobson.

Accordingly, the examiner erred in considering Jacobson and McCormack to both correspond to “conventional” plating systems.

II. TAKEN AS A WHOLE, MORGAN TEACH AWAY FROM COMBINING JACOBSON, MCCORMACK

In the Examiner’s Answer, the examiner asserts that Morgan does not teach away from ink-jetting because Morgan does not expressly exclude ink-jetting.

Morgan describes and considers ink-jetting, then declines to use ink-jetting in the disclosed gravure printing method due to “major deficiencies” in ink-jetting (column 2, line 30). Thus, Morgan expressly rejects ink-jet technology and uses a different method, gravure printing.

The Federal Circuit has held that the totality of the prior art must be considered, and proceeding contrary to accepted wisdom in the art is evidence of nonobviousness. *In re*

Hedges, 783 F.2d 1038 (Fed. Cir. 1986). Here, the accepted wisdom would have been that not to incorporate the Morgan teachings into an ink-jetting process such as that of Jacobson.

CONCLUSION

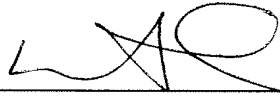
Applicants respectfully submit that all claims on appeal are allowable over the art of record. Applicants request reversal of the Examiner's rejection of claims 1-12, 14-15, and 18-20.

At any time during the pendency of this application, please charge any fees required or credit any over payment to Deposit Account 08-2025 pursuant to 37 C.F.R. § 1.25. Additionally, charge any fees to Deposit Account 08-2025 under 37 C.F.R. § 1.16 through § 1.21 inclusive, and any other sections in Title 37 of the Code of Federal Regulations that may regulate fees.

Respectfully submitted,

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